

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A mat element (1) or beam element comprising at least:

an elongated tube (1) and inside said tube

- an upper ~~part~~ section (2) delimited by an upper zone of said tube,
- a distributor-collector part (3) comprising one or more secondary orifices (7i) and comprising at least one main orifice (6), whereby the passage sections of orifices (6) and (7i) are different, said distributor collector part (3) being delimited by an intermediate section of said tube beneath said upper section,
- a lower enclosure part (4) beneath said distributor-collector part (3) delimited by a lower section of said tube,
- ~~distributor collector part or parts (3) arranged between an upper part (2) and a lower part (4),~~
- a first sealing element (5a) arranged between said distributor-collector part (3) and said upper ~~part~~ section (2) and a second sealing element (5b) arranged between said distributor-collector part (3) and said lower ~~part~~ section (4), distributor and
- a separation element (8) arranged at inside said distributor-collector part (3), thus delimiting two spaces (3a, 3b) for circulation of fluids.

Claim 2 (Currently Amended) A mat element according to claim 1, comprising means disposed in said tube delimiting a space (3c) that is separate from spaces (3a, 3b), whereby said space (3c) is connected to means (70i) for passing a fluid that communicates with the outside of the mat, and at least one means (74) for passing a fluid, one of whose ends is arranged at distributor-collector part (3) and another end communicates with another mat element.

Claim 3 (Currently Amended) A mat element according to claim 1, comprising several distributor-collector parts (3, 3') that are each provided with main orifices and secondary orifices (6, 7i), whereby different distributor-collector parts (3, 3') are arranged between an upper part (2) and a lower part (4), whereby part (3) is separated from part (3') by a sealing element, and each of parts (3) comprises at least said separation element 8 delimiting a space (3a) and a space (3b).

Claim 4 (Previously Presented) A mat element according to claim 3, comprising at least one means (90) for passing a fluid that communicates with at least one of spaces (3a) or (3b').

Claim 5 (Currently Amended) A beam element according to claim 1, comprising ~~one or more~~ a plurality of units, each comprising at least:

- an upper ~~part~~ section (2),
- a distributor-collector part (3) comprising one or more secondary orifices (7i) and comprising at least one main orifice (6), whereby the passage sections of orifices (6) and (7i) are different,
- a lower enclosure part (4),

- distributor-collector part or parts (3) arranged between an said upper part (2) and a said lower enclosure part (4),
- a sealing element (5a) arranged between distributor-collector part (3) and said upper part (2) and a sealing element (5b) arranged between distributor-collector part (3) and said lower part (4),
- a separation element (8) arranged at inside distributor-collector part (3), thus delimiting two spaces (3a, 3b) for circulation of fluids.

Claim 6 (Previously Presented) A mat element according to claim 1, comprising an approximately cylindrical beam element.

Claim 7 (Currently Amended) A mat element according to claim 1, comprising connecting means (10a, 10b) arranged at at least its lower end and/or its upper end for connecting to another mat element.

Claim 8 (Cancelled)

Claim 9 (Currently Amended) A device for bringing at least one fluid into contact with a solid, comprising at least:

- one chamber (40),
- a mat arranged approximately along the axis of said chamber,
- several spaced levels of distributor plates (Pi),

- a solid bed (Ai) arranged between two plates (Pi),
- several transfer lines (Ti) for the circulation of fluids between the chamber and the outside of the chamber,
- a said mat comprising on at least a portion of its length a mat element comprising at least the following characteristics:
 - an upper ~~part~~ section (2) delimited by an upper zone of said tube,
 - a distributor-collector part (3) that comprises one or more secondary orifices (7i) and that comprises at least one main orifice (8), whereby the passage sections of orifices (6) and (7i) are different, said distributor collector part (3) being delimited by an intermediate section of said tube beneath said upper section,
 - a lower enclosure part (4) beneath said distributor-collector part (3) delimited by a lower section of said tube,
 - ~~distributor collector part or parts (3) are arranged between said upper part (2) and said lower part (4),~~
 - a first sealing element (5a) arranged between said distributor-collector part (3) and said upper ~~part~~ section (2) and a second sealing element (5b) arranged between said distributor-collector part (3) and said lower ~~part~~ section (4), whereby said sealing elements permit fluid circulation substantially only in said distributor-collector part (3), and
 - a separation element (8) arranged at inside said distributor-collector part (3), thus delimiting two spaces (3a, 3b) for circulation of fluids.

Claim 10 (Currently Amended) A device according to claim 9, wherein said mat element or elements comprise means disposed in said tube delimiting a space (3c) that is separate from spaces (3a, 3b), whereby said space (3c) is connected to means (70i) for passing a fluid that communicates with the outside of the mat, and at least one means (74) for passing a fluid, one of whose ends is arranged at distributor-collector part (3) and another end communicates with another mat element.

Claim 11 (Currently Amended) A device according to claim 9, wherein said mat element or elements comprise several distributor-collector parts (3, 3') that are each provided with orifices (6, 7i), whereby different distributor-collector parts (3, 3') are arranged between an upper part (2) and a lower part (4), whereby part (3) is separated from part (3') by a sealing element, each of parts (3) comprises said separation element delimiting at least a space (3a) and a space (3b).

Claim 12 (Previously Presented) A device according to claim 11, wherein said mat element or elements comprises at least one means (90) for passing a fluid that communicates with at least one of spaces (3a) or (3b').

Claim 13 (Currently Amended) A device according to claim 9, comprising several secondary fluid transfer lines (60i) connected to ~~said~~ secondary passage means.

Claim 14 (Previously Presented) A device according to claim 9, comprising transfer lines (Ti) connected to one or more means (V_0 , V_1 , V_2 , V_3 , V) that allow the circulation of various fluids between the outside of said chamber and the inside according to a given sequence.

Claim 15 (Previously Presented) A device according to claim 14, comprising a rotary valve for linking several groups of hoses: group G_1 , group G_2 and group G_3 , whereby said valve comprises at least:

- a stator (100) provided with circulation means (E, F, R, S) of the fluid or fluids of group G_1 , means (105, 106) for passing at least two fluids F_1 , F_2 that belong to group G_3 ,
- a rotor (107) equipped with means (109) for passing fluids of group G_3 and also means (110) that allow the linking either of fluids of group G_1 with group G_3 or of group G_3 with group G_3 ,
- the number of means (105) for passing for fluid F_1 is approximately identical to the number of means (106) for passing for fluid F_2 , and said valve comprises means (102) for linking at least two fluids of group G_3 , wherein passage section S_1 of openings for fluid F_1 is different from passage section S_2 of openings intended for fluid F_2 .

Claim 16 (Previously Presented) A device according to claim 15, wherein the passage means of the rotary valve for fluid F_1 and for fluid F_2 have passage surface areas, respectively S_1 and S_2 , and wherein the S_1/S_2 ratio is approximately equal to 4 and preferably between 2 and 10.

Claim 17 (Previously Presented) A device according to claim 15, wherein said means for linking the rotary valve of the fluids of group G_3 comprises slots (112) arranged in a layer of material or a liner deposited on the lower face of the rotor.

Claim 18 (Previously Presented) A device according to claim 17, wherein slots (112) of said valve have a depth "pe" and wherein said depth is at least equal to thickness "e" of the liner.

Claim 19 (Previously Presented) A device according to claim 17, wherein said circulation means (E, R, S, F) of said rotary valve are formed from several grooves arranged on the support face of the stator and wherein the slots are arranged in the liner.

Claim 20 (Previously Presented) A device according to claim 15, wherein said circulation means (E, R, S, F) of said rotary valve are four in number.

Claim 21 (Previously Presented) A device according to claim 13, wherein said plates (Pi) comprise several sectors of radial form and wherein each of the sectors comprises at least one fluid distribution chamber (Ci), whereby said fluid distribution chambers are connected to said central mat by said secondary fluid transfer lines (60i).

Claim 22 (Previously Presented) A device according to claim 13, wherein said plates are precut into several sectors of tangential form, and each of the sectors comprises at least one fluid

distribution chamber, whereby said chambers are connected to said central mat by said secondary fluid transfer lines.

Claim 23 (Previously Presented) A method for the separation of at least one aromatic isomer with eight carbon atoms into a mixture of xylenes and ethylbenzene, said method comprising utilizing the device of claim 9.

Claim 24 (New) A device for bringing at least one fluid into contact with a solid, comprising at least:

- one chamber (40),
- a mat arranged approximately along the axis of said chamber,
- several spaced levels of distributor plates (Pi),
- a solid bed (Ai) arranged between two plates (Pi),
- several transfer lines (Ti) for the circulation of fluids between the chamber and the outside of the chamber,
- said mat comprising on at least a portion of its length a mat element comprising at least the following characteristics:
 - an upper part (2),
 - a distributor-collector part (3) that comprises one or more secondary orifices (7i) and that comprises at least one main orifice (8), whereby the passage sections of orifices (6) and (7i) are different,
 - a lower part (4),

- distributor-collector part or parts (3) are arranged between said upper part (2) and said lower part (4),
- a sealing element (5a) arranged between distributor-collector part (3) and upper part (2) and a sealing element (5b) arranged between distributor-collector part (3) and lower part (4),
- a separation element (8) arranged at distributor-collector part (3), thus delimiting two spaces (3a, 3b) for circulation of fluids, said device further comprising a rotary valve for linking several groups of hoses: group G_1 , group G_2 and group G_3 , whereby said valve comprises at least:
 - a stator (100) provided with circulation means (E, F, R, S) of the fluid or fluids of group G_1 , means (105, 106) for passing at least two fluids F_1 , F_2 that belong to group G_3 ,
 - a rotor (107) equipped with means (109) for passing fluids of group G_3 and also means (110) that allow the linking either of fluids of group G_1 with group G_3 or of group G_3 with group G_3 ,
 - the number of means (105) for passing for fluid F_1 is approximately identical to the number of means (106) for passing for fluid F_2 , and said valve comprises means (102) for linking at least two fluids of group G_3 , wherein passage section S_1 of openings for fluid F_1 is different from passage section S_2 of openings intended for fluid F_2 .

Claim 25 (New) A device according to claim 24, wherein the passage means of the rotary valve for fluid F_1 and for fluid F_2 have passage surface areas, respectively S_1 and S_2 , and wherein the S_1/S_2 ratio is approximately equal to 4 and preferably between 2 and 10.

Claim 26 (New) A device according to claim 24, wherein said means for linking the rotary valve of the fluids of group G_3 comprises slots (112) arranged in a layer of material or a liner deposited on the lower face of the rotor.

Claim 27 (New) A device according to claim 26, wherein slots (112) of said valve have a depth "pe" and wherein said depth is at least equal to thickness "e" of the liner.

Claim 28 (New) A device according to claim 24, wherein said circulation means (E, R, S, F) of said rotary valve are formed from several grooves arranged on the support face of the stator and wherein the slots are arranged in the liner.

Claim 29 (New) A device according to claim 24, wherein said circulation means (E, R, S, F) of said rotary valve are four in number.

Claim 30 (New) A device for bringing at least one fluid into contact with a solid, comprising at least:

- one chamber (40),
- a mat arranged approximately along the axis of said chamber,

- several spaced levels of distributor plates (Pi),
- a solid bed (Ai) arranged between two plates (Pi),
- several transfer lines (Ti) for the circulation of fluids between the chamber and the outside of the chamber,
- said mat comprising on at least a portion of its length a mat element comprising at least the following characteristics:
 - an upper part (2),
 - a distributor-collector part (3) that comprises one or more secondary orifices (7i) and that comprises at least one main orifice (8), whereby the passage sections of orifices (6) and (7i) are different,
 - a lower part (4),
 - distributor-collector part or parts (3) are arranged between said upper part (2) and said lower part (4),
 - a sealing element (5a) arranged between distributor-collector part (3) and upper part (2) and a sealing element (5b) arranged between distributor-collector part (3) and lower part (4),
 - a separation element (8) arranged at distributor-collector part (3), thus delimiting two spaces (3a, 3b) for circulation of fluids, and further comprising several secondary fluid transfer lines (60i) connected to secondary passage means and wherein said plates (Pi) comprise several sectors of radial form and wherein each of the sectors comprises at least one fluid distribution chamber (Ci), whereby said fluid distribution

chambers are connected to said central mat by said secondary fluid transfer lines (60i).

Claim 31 (New) A device according to claim 30, wherein said plates are precut into several sectors of tangential form, and each of the sectors comprises at least one fluid distribution chamber, whereby said chambers are connected to said central mat by said secondary fluid transfer lines.

Claim 32 (New) A method for the separation of at least one aromatic isomer with eight carbon atoms into a mixture of xylenes and ethylbenzene, said method comprising separating said mixture in a system comprising:

- one chamber (40),
- a mat arranged approximately along the axis of said chamber,
- several spaced levels of distributor plates (Pi),
- a solid bed (Ai) arranged between two plates (Pi),
- several transfer lines (Ti) for the circulation of fluids between the chamber and the outside of the chamber,
- said mat comprising on at least a portion of its length a mat element comprising at least the following characteristics:
 - an upper part (2),

- a distributor-collector part (3) that comprises one or more secondary orifices (7i) and that comprises at least one main orifice (8), whereby the passage sections of orifices (6) and (7i) are different,
- a lower part (4),
- distributor-collector part or parts (3) are arranged between said upper part (2) and said lower part (4),
- a sealing element (5a) arranged between distributor-collector part (3) and upper part (2) and a sealing element (5b) arranged between distributor-collector part (3) and lower part (4),
- a separation element (8) arranged at distributor-collector part (3), thus delimiting two spaces (3a, 3b) for circulation of fluids.

Claim 33 (New) A mat element according to claim 1, wherein said first and second sealing elements are imperforate solid disks transverse to the longitudinal axis of said elongated tube.

Claim 34 (New) A mat element according to claim 1, said separation element being a plate having at least one orifice (9) permitting communication between said two spaces (3a, 3b) said separation element in combination with said sealing element, said one or more secondary orifices (7i) and said main orifice (6), permitting a fluid to pass successively from the main orifice (6) into space 3a, through orifice (9) into space 3b and through orifices (7i), or in the reverse direction.